

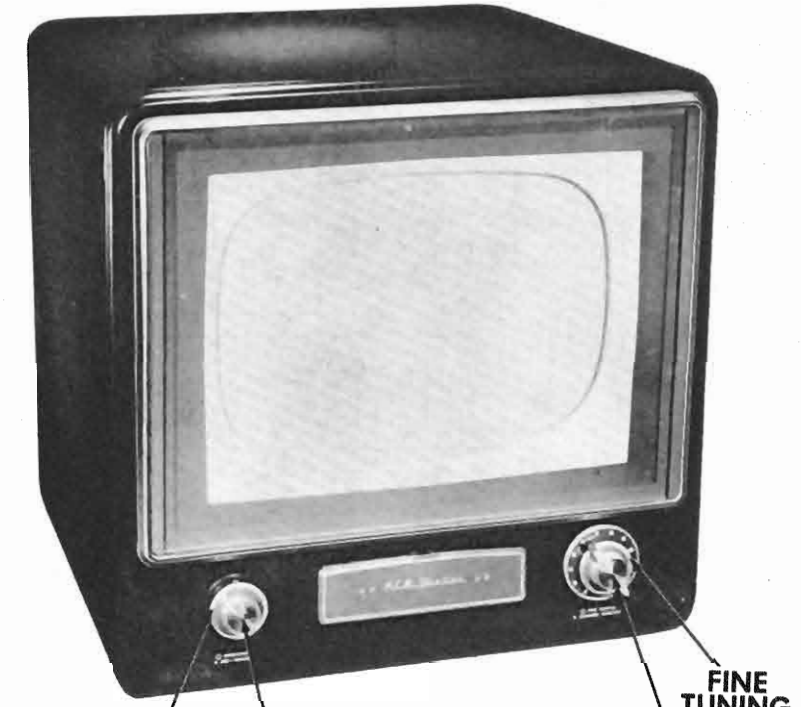
ALTERNATE TUNER SCHEMATIC  
A PHOTOFACT STANDARD NOTATION SCHEMATIC  
© Howard W. Sams & Co., Inc. 1953

ALTERNATE TUNER SCHEMATIC

PHOTOFACT\* Folder



RCA VICTOR MODELS 17-T-301, U, 17-T-302, U, 17-T-310, U (Ch. KCS78, B)



RCA VICTOR MODEL 17-T-301	
TRADE NAME	RCA Victor Model 17-T-301, -301U, 17-T-302, -302U, 17-T-310, -310U (Ch. KCS78, KCS78B)
MANUFACTURER	RCA Victor Div., Radio Corp. of America, Camden, N.J.
TYPE SET	Television Receiver
TUBES	Twenty-two
POWER SUPPLY	110-120 Volts AC-60 Cycle
TUNING RANGE	Channels 2 thru 13, Video IF 45.75MC, Sound IF 41.25MC (Inter-carrier).
RATING	1.98 Amp @ 117 Volts AC
INDEX	
Alignment Instructions .....	5 thru 8
Disassembly Instructions .....	23
Horizontal Sweep Circuit Adjustments .....	21
Parts List and Descriptions .....	15 thru 18
Photographs	
Cabinet-Rear View .....	21
Capacitor and Alignment Identification .....	4, 9
Chassis-Top View .....	3
High Voltage Compartment .....	22
RF Tuner .....	12, 22
Photographs (Cont)	
Resistor and Inductor Identification .....	13, 20
Resistance Measurements .....	11
Servicing in the Field .....	23
Schematic (Alternate Tuner) .....	24
Schematic (TV) .....	2
Trouble Shooting Aids .....	14, 19
Tube Failure Check Chart .....	10
Tube Placement Chart (Bottom View) .....	11
Tube Placement Chart (Top View) .....	10

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."

Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1953 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc. Printed in U. S. of America

DATE 6-53 SET 206 FOLDER 10

RCA VICTOR MODELS 17-T-301, U, 17-T-302, U, 17-T-310, U (Ch. KCS78, B)

## SERVICING IN THE FIELD

### TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the RF tuner oscillator circuit may be accomplished by removing the channel selector, fine tuning knobs and selector escutcheon. To remove escutcheon, slide clip spring to the left.

### PICTURE TUBE SAFETY GLASS CLEANING

Remove 2 metal retainers on each side of Crt. located on inside front of cabinet.

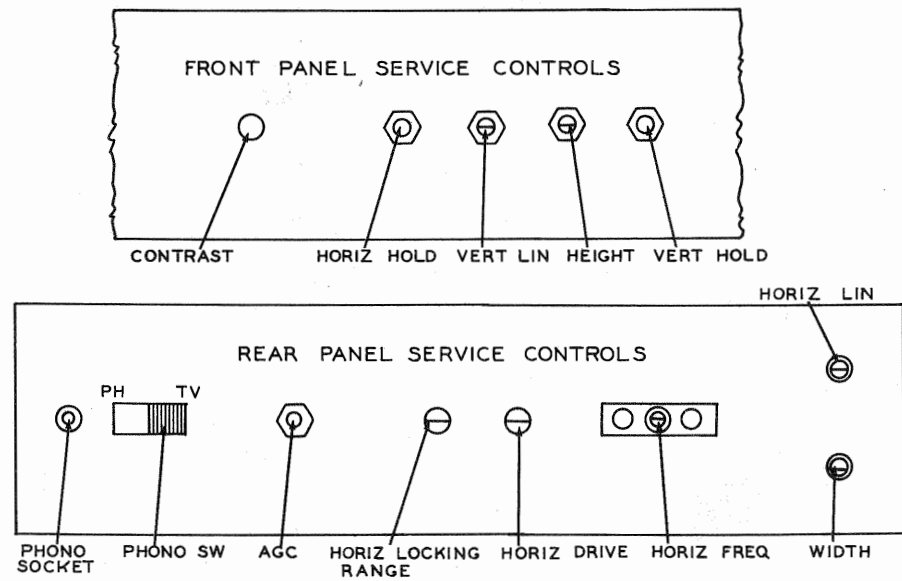
Remove 2 safety glass retaining strips. Remove safety glass.

Hold safety glass during this operation. Use extreme caution when removing safety glass.

### PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instruction.).

### SERVICE ADJUSTMENT LOCATION



### SPECIAL ADJUSTMENTS—AGC CONTROL

Turn brightness control fully clockwise. Turn AGC Control fully counter clockwise then clockwise until a very slight bend or change of bend in picture is noted. Then turn counter clockwise enough to remove the bend or change of bend. With very weak signals turn AGC Control clockwise until snow in picture becomes more pronounced then counter clockwise until best signal to noise ratio is obtained. Adjustment should be made on a strong signal if possible.

### HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the Horiz. Oscillator Circuit can be made from the rear panel of the chassis. Set the Horiz. Hold Control at the mid-position of its range and adjust the Horiz. Freq. slug until the picture synchronizes horizontally.

### SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate Sound IF Detector Buzz, adjust the Ratio Detector Secondary L34 located on bottom of chassis. (See tube placement chart).

### FUSES

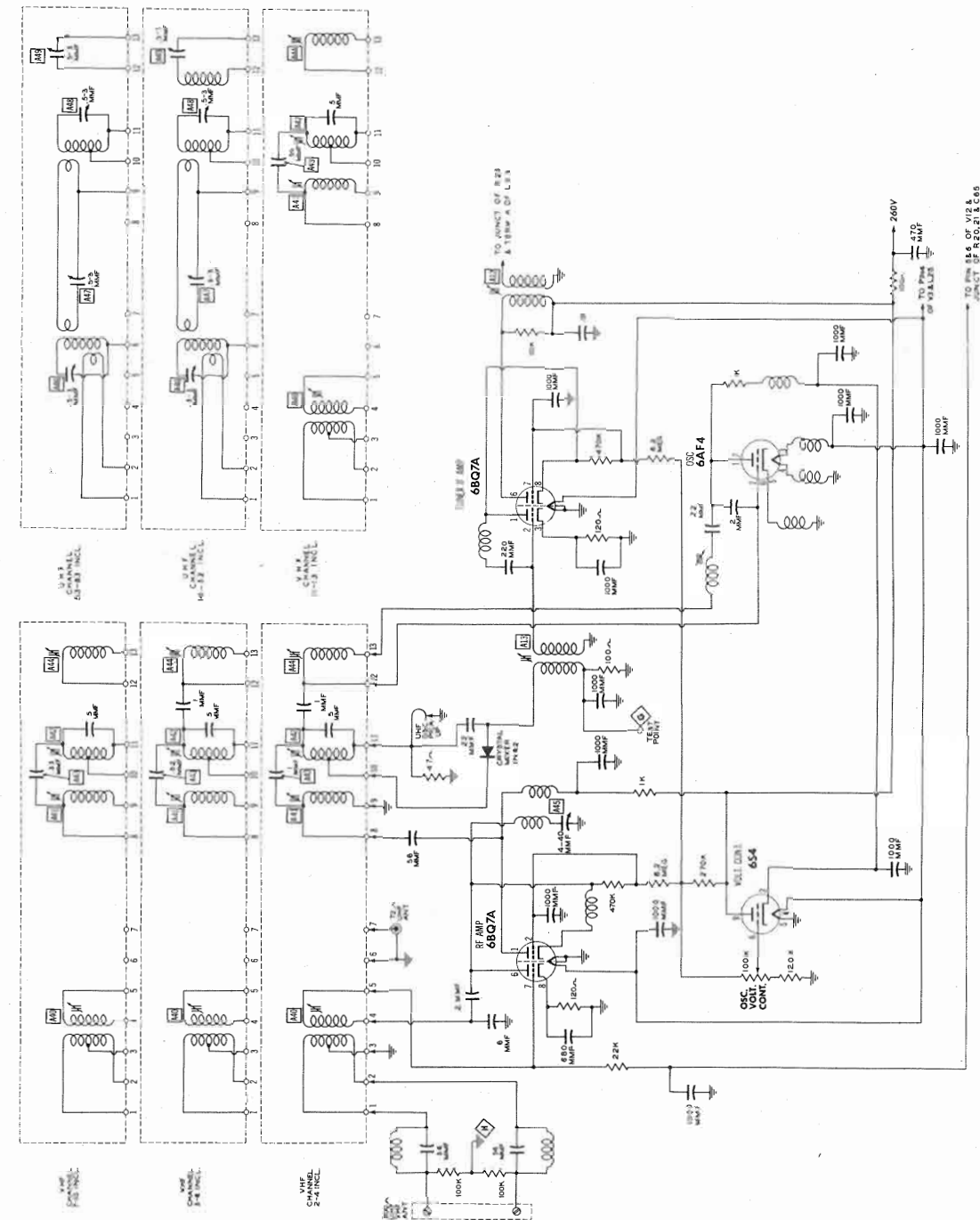
One fuse is used for Horiz. Sweep Circuit protection. (For location see tube placement chart).

### CENTERING

Centering is accomplished mechanically by means of a centering lever on the PM. Focusing assembly. Adjust the centering lever from side to side, and up and down until the picture is properly centered.

## DISASSEMBLY INSTRUCTIONS

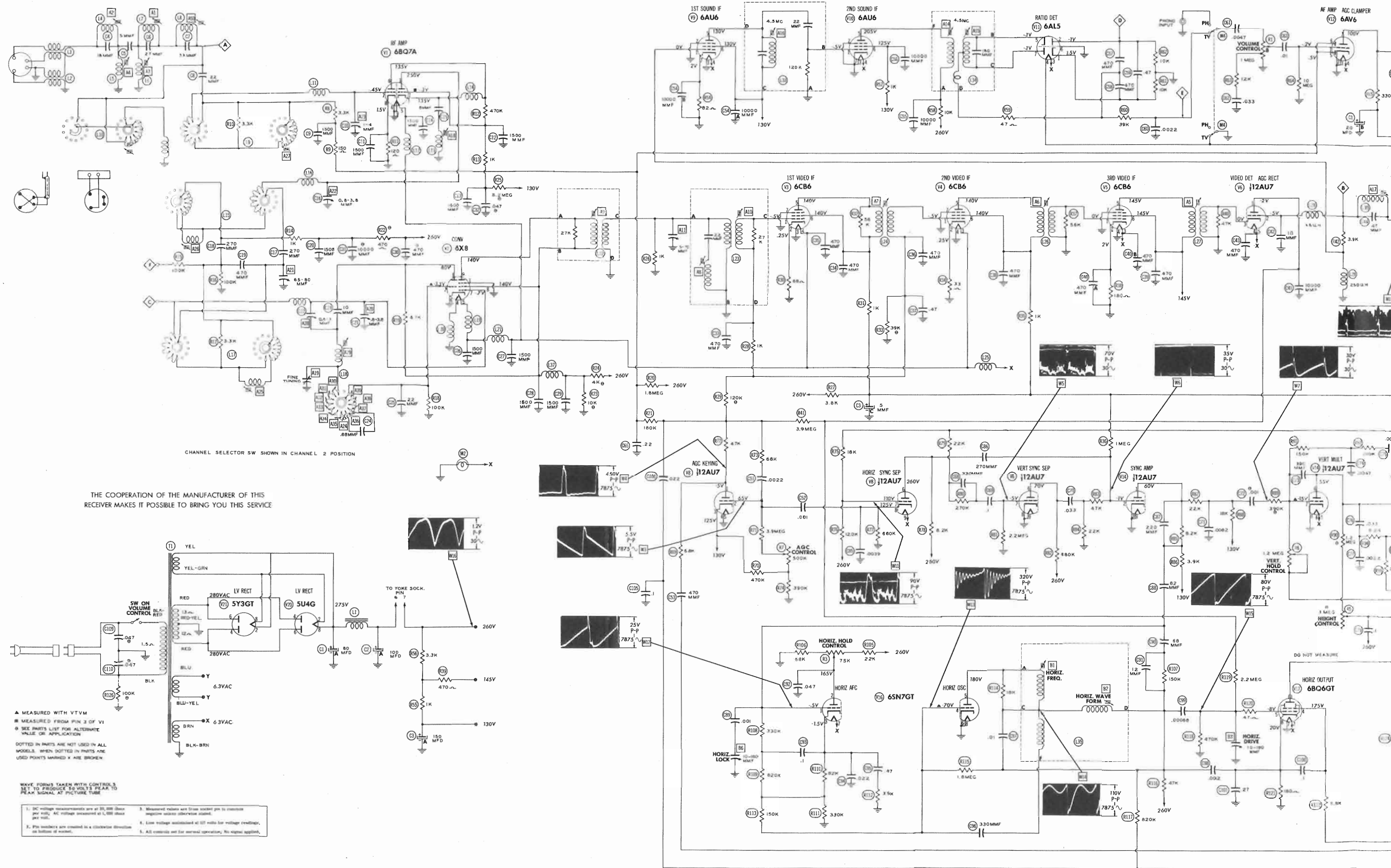
1. Remove 5 push on type control knobs from front panel.
2. Disconnect transmission line from rear cover.
3. Remove 4 metal screws. Remove rear cover.
4. Disconnect speaker, yoke plug, Crt. socket & HV lead.
5. Remove 5 chassis bolts. Remove chassis.
6. Remove 4 speaker nuts. Remove speaker. (Not necessary for chassis removal).

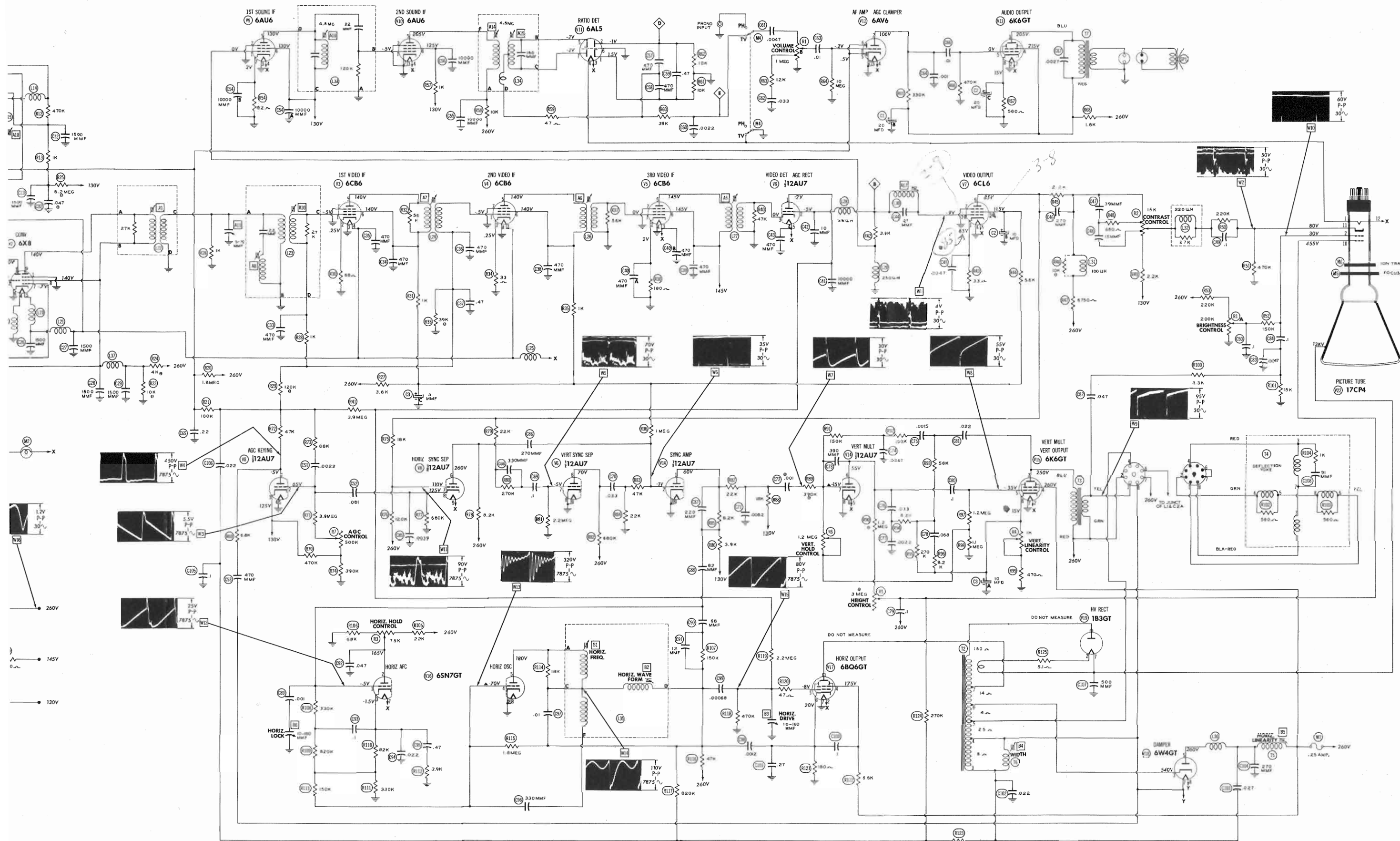


ALTERNATE TUNER ARK-2 USED IN MODEL ITT30U, ITT32U & ITT35U

A PHOTOFACT STANDARD NOTATION SCHEMATIC  
© Howard W. Sams & Co., Inc. 1953

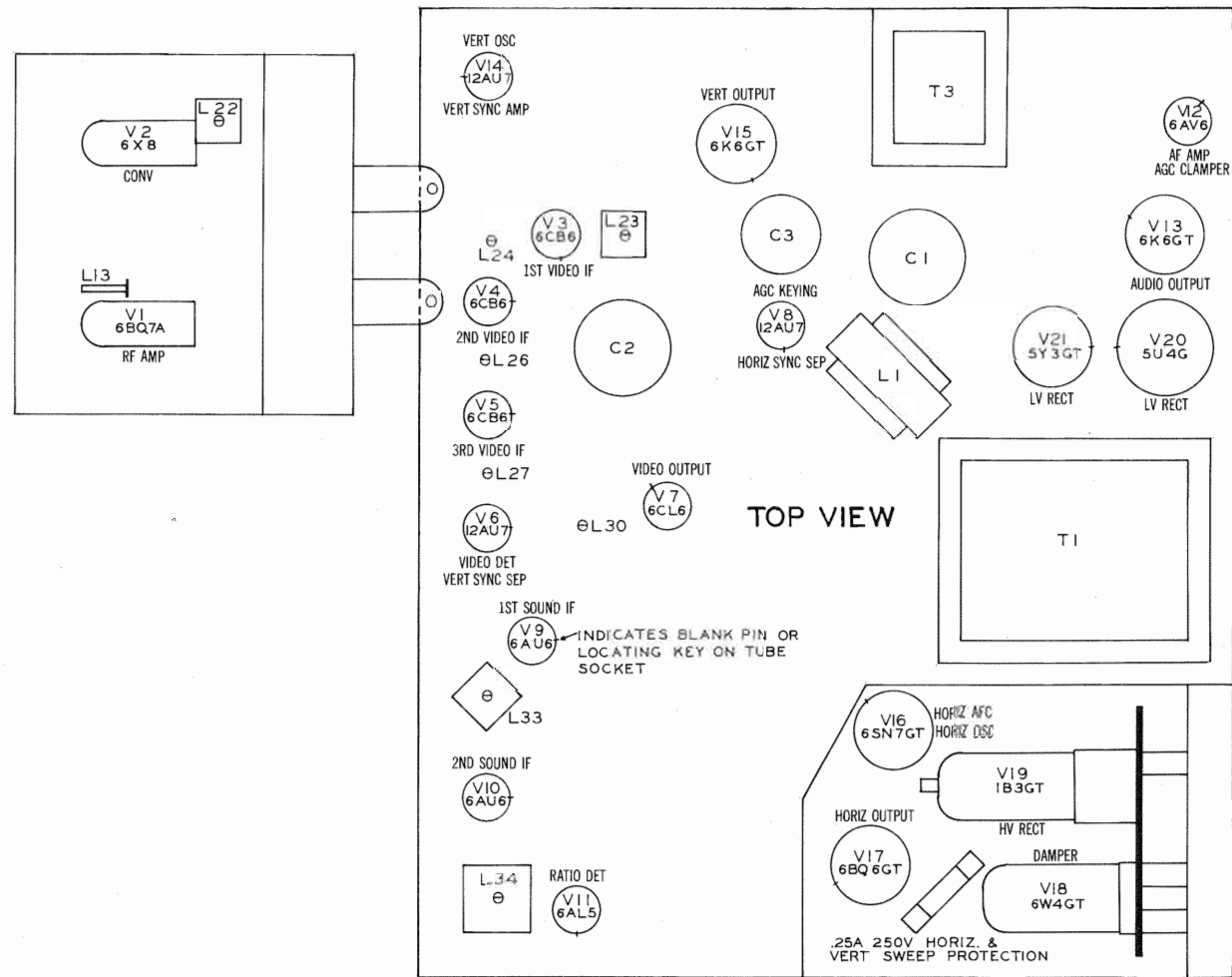
## ALTERNATE TUNER SCHEMATIC





RCA VICTOR MODELS 17-T-301, U, 17-T-302, U,  
17-T-310, U (Ch. KC578, B)

## TUBE PLACEMENT CHART



## TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

## POWER SUPPLY FAILURE

No raster, no sound-V20, V21

### LOSS OF PICTURE OR SOUND

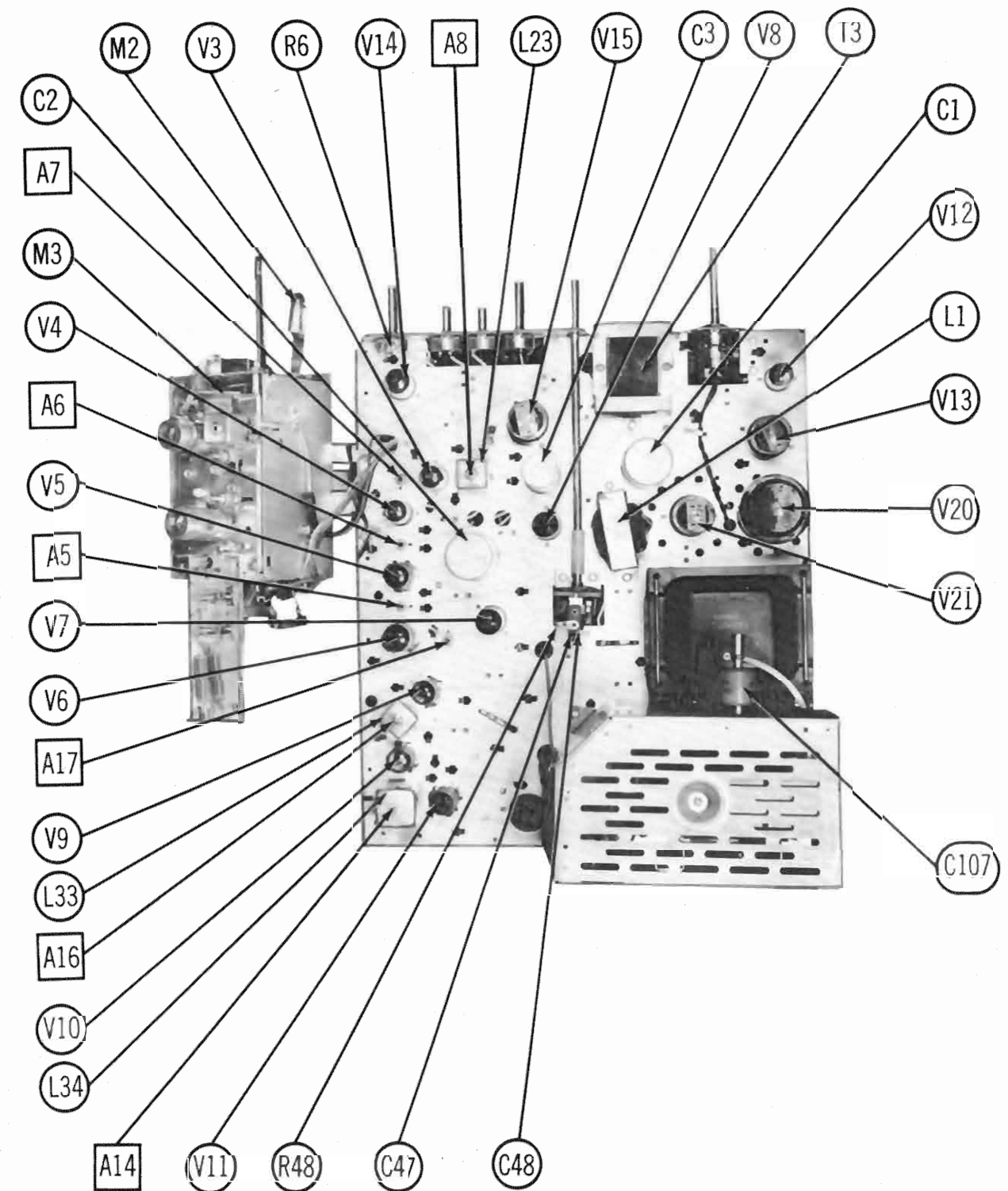
No pic, no sound, has raster-V2, V3, V4, V5, V6  
No pic, no sound, has snow-V1, V2, V3  
No pic, has sound, has raster-V7, V22  
Has pic, no sound-V9, V10, V11, V12, V13  
Overloaded picture-V8, V12

6 SYNC FAILURE

No vert. sync. -V14  
No horiz. sync. -V14, V16  
No vert. or horiz. sync. -V6, V8, V14

## SWEEP FAILURE

No raster, has sound-V16, V17, V18, V19, V22 Fuse (M)  
No vertical deflection-V14, V15  
Poor vert. linearity or foldover-V14, V15  
Poor horiz. linearity or foldover-V16, V17, V18  
Narrow picture-V16, V17, V18, V19, V20, V21  
Vert. off freq.-V14  
Horiz. off freq.-V14, V16



### CHASSIS TOP VIEW

**RCA VICTOR MODELS 17-T-301, U, 17-T-302, U,  
17-T-310, U (Ch. KCS78, B)**



## ALIGNMENT INSTRUCTIONS (CONT.)

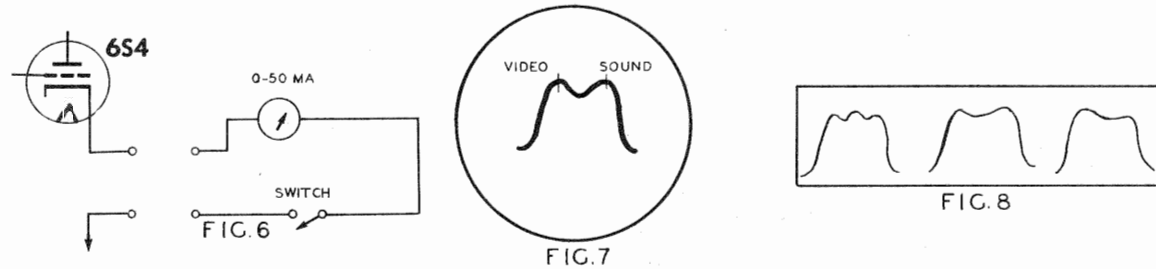
### KRK12 TUNER UHF ALIGNMENT

Alignment of the UHF portion of the tuner should not be attempted unless the following test equipment is available, in addition to the usual VHF test equipment: A UHF sweep generator covering the frequency range of 470MC to 890MC. A marker generator of crystal accuracy covering the same frequency range. Leave 6S4 adaptor connected as under KRK12 Tuner VHF Alignment. Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection. The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms. Set the fine tuning control to the mid-position of its range.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
40. 10 db attenuator pad	Sweep generator thru attenuator to antenna terminals. Couple UHF marker generator loosely to antenna terminals.	Set sweep to cover channel being aligned. See chart. Use 10MC swp width	Set alternately to video and sound carrier frequency of channel being aligned. See chart.	14 thru 83	Vert. Amp. to point $\odot$ . Low side to chassis.	A46, A47, A48	Turn off the adaptor switch, removing plate voltage from oscillator. Ground the AGC line at the tuner terminal board. Adjust for maximum gain, symmetrical response curve centered about the pass band. See Fig. 8 for acceptable variations.
41.	Connect both bias supplies and adjust as under Tuner VHF Alignment. Remove the ground from the AGC line. Turn the adaptor switch on to apply plate voltage to the oscillator. Connect the VHF signal generator to point $\odot$ using very short leads. Set generator to 45.75MC for remainder of tuner alignment.						
42. 10 db attenuator pad	Sweep generator thru attenuator to antenna terminals. Connect UHF marker generator to point $\odot$ , and tuner chassis.	Set sweep to cover channel being aligned. See chart. Use 10MC swp width	Set to video carrier frequency of channel being aligned. See chart.	14 thru 83	Vert. Amp. to point $\odot$ . Low side to chassis.	A49	Adjust A49 for channel strip being aligned until 45.75MC and video carrier marker coincide on response curve. Adjust A48 of channel strip being aligned for maximum gain with proper wave shape. Connect VTVM to point $\odot$ . Common to chassis. Set oscillator injection adjustment for reading on VTVM between .1 volt and .3 volt on all channel strips.

### FM TRAP ADJUSTMENT

Tune in a TV station on which FM interference is noted and adjust A50 to minimize the interference. On some receivers A50 will tune into channels 6 or 5. Care must be used to avoid this possibility as reduced sensitivity on these channels will result.



### TELEVISION CHANNEL FREQUENCIES

Channel No.	Frequency Band (Mc)	Video Carrier	Sound Carrier	Channel No.	Frequency Band (Mc)	Video Carrier	Sound Carrier	Channel No.	Frequency Band (Mc)	Video Carrier	Sound Carrier	Channel No.	Frequency Band (Mc)	Video Carrier	Sound Carrier
2	54-60	55.25	59.75	23	524-530	525.25	529.75	44	650-656	651.25	655.75	64	770-776	771.25	775.75
3	60-66	61.25	65.75	24	530-536	531.25	535.75	45	656-662	657.25	661.75	65	776-782	777.25	781.75
4	66-72	67.25	71.75	25	536-542	537.25	541.75	46	662-668	663.25	667.75	66	782-788	783.25	787.75
5	72-78	73.25	77.75	26	542-548	543.25	547.75	47	668-674	669.25	673.75	67	788-794	789.25	793.75
6	78-84	79.25	83.75	27	548-554	549.25	553.75	48	674-680	675.25	679.75	68	794-800	795.25	799.75
7	174-180	175.25	179.75	28	554-560	555.25	559.75	49	680-686	681.25	685.75	69	800-806	801.25	805.75
8	180-186	181.25	185.75	29	560-566	561.25	565.75	50	686-692	687.25	691.75	70	806-812	807.25	811.75
9	186-192	187.25	191.75	30	566-572	567.25	571.75	51	692-698	693.25	697.75	71	812-818	813.25	817.75
10	192-198	193.25	197.75	31	572-578	573.25	577.75	52	698-704	699.25	703.75	72	818-824	819.25	823.75
11	198-204	199.25	203.75	32	578-584	579.25	583.75	53	704-710	705.25	709.75	73	824-830	825.25	829.75
12	204-210	205.25	209.75	33	584-590	585.25	589.75	54	710-716	711.25	715.75	74	830-836	831.25	835.75
13	210-216	211.25	215.75	34	590-596	591.25	595.75	55	716-722	717.25	721.75	75	836-842	837.25	841.75
14	470-476	471.25	475.75	35	596-602	597.25	601.75	56	722-728	723.25	727.75	76	842-848	843.25	847.75
15	476-482	477.25	481.75	36	602-608	603.25	607.75	57	728-734	729.25	733.75	77	848-854	849.25	853.75
16	482-488	483.25	487.75	37	608-614	609.25	613.75	58	734-740	735.25	739.75	78	854-860	855.25	859.75
17	488-494	489.25	493.75	38	614-620	615.25	619.75	59	740-746	741.25	745.75	79	860-866	861.25	865.75
18	494-500	495.25	499.75	39	620-626	621.25	625.75	60	746-752	747.25	751.75	80	866-872	867.25	871.75
19	500-506	501.25	505.75	40	626-632	627.25	631.75	61	752-758	753.25	757.75	81	872-878	873.25	877.75
20	506-512	507.25	511.75	41	632-638	633.25	637.75	62	758-764	759.25	763.75	82	878-884	879.25	883.75
21	512-518	513.25	517.75	42	638-644	639.25	643.75	63	764-770	765.25	769.75	83	884-890	885.25	889.75
22	518-524	519.25	523.75	43	644-650	645.25	649.75								

## ALIGNMENT INSTRUCTIONS

### ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard can be eliminated by removing the horizontal oscillator tube, V16.

### ANTENNA MATCHING UNIT ALIGNMENT

The antenna matching unit is properly aligned at the factory. The RF unit is aligned with a particular antenna matching unit in place. If a new antenna unit is installed, the RF unit should be realigned. Alignment should not be attempted without the proper alignment facilities.

Disconnect the lead from the FM trap, L8, to the channel selector switch. Use a short jumper to connect point  $\odot$  on the matching unit through a .001MFD capacitor to pin 1, grid, of 6CB6 (V4). Remove 6CB6, V3, from its socket.

Cover the matching unit must be in place during alignment. Connect the ends of a 1000Ω potentiometer across a 7.5 volt battery capable of withstanding considerable current drain. Connect the positive terminal to chassis and the potentiometer arm to the junction of R28 and R29. Set the potentiometer arm to obtain -5 volts at this point.

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection. The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	Not Used.	45.75MC (400% Mod)	Any	Vert. amp to point $\odot$ . Low side to chassis.	A1	Set oscilloscope gain to maximum and adjust A1 for MINIMUM 400% response.
2. "	"	"	45.25MC (400% Mod)	"	"	A2	Adjust for MINIMUM 400% response on scope.
3. "	"	40MC (10MC Swp)	50MC, 52MC, 53MC	"	Vert. amp thru detector probe (Fig. 1) to point $\odot$ . Low side to chassis.	A3, A4	Remove the .001MFD capacitor (See instructions above) from point A and connect a 300Ω carbon resistor from point A to chassis using short leads. Adjust A3 and A4 to obtain response curve as in Fig. 2. Repeat steps 1, 2 and 3 until no further improvement is made. Remove the 300Ω resistor and the detector probe. Restore the connection between L8 and the channel switch. Replace V3.

### VIDEO IF ALIGNMENT FOR RECEIVERS USING VHF TUNER KRK1-B

Connect bias supply as under Antenna Matching Unit Alignment and adjust for -5 volts. Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4. .001MFD	High side to terminal "A" of L23. Low side to chassis.	Not Used.	44.5MC	Any not used locally.	Use VTVM. DC probe to point $\odot$ . Common to chassis.	A5	Adjust for maximum deflection. Attenuate generator to maintain not more than 3 Volt indication on VTVM.
5. "	"	"	45.5MC	"	"	A6	"
6. "	"	"	43.0MC	"	"	A7	"
7. "	"	"	47.25MC	"	"	A8	Adjust for MINIMUM deflection.
8. .0015MFD Ceramic Capacitor	High side thru .0015 MFD to point $\odot$ . Low side to tuner chassis. Use very short leads.	43MC (10MC Swp)	42.5MC, 45.75MC, 47.25MC	4	Vert. amp of scope thru detector (Fig. 1) to pin 5 (Plate) of 6CB6 (V3). Low side to chassis.	A9, A10, A11	Set AGC control fully clockwise. Preset A11 to minimum capacity. Clip 330Ω resistors across primaries of L26 and L27. Connect a 180Ω carbon resistor from plate to screen of 6CB6 (V3). Adjust A9 and A10 for maximum gain with 45.75MC at 70% response as in Fig. 3. Attenuate generator to maintain .3 Volt peak to peak response on scope. Adjust A11 to place 42.5MC at 70% on response curve.
9. "	"	"	42.5MC, 45.0MC, 45.75MC, 46.5MC	"	Vert. amp to point $\odot$ . Low side to chassis.		Disconnect the 180Ω and the two 330Ω resistors. Adjust output of generator for 3 Volts peak to peak on scope. Retouch A5, A6 and A7 for response similar to Fig. 4.

### VIDEO IF ALIGNMENT FOR RECEIVERS USING UHF-VHF TUNER KRK12

Connect bias supply as under Antenna Matching Unit Alignment and adjust for -5 volts. Turn the AGC control fully clockwise. Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4. .0015MFD Ceramic Capacitor	High side to junction of L18 and the IF grid transformer. Low side to tuner chassis. Use short leads.	Not Used.	44.5MC	Any not used locally.	Use VTVM. DC probe to point $\odot$ . Common to chassis.	A5	Adjust for maximum deflection. Attenuate generator to maintain not more than 3 Volt indication on VTVM.
5. "	"	"	45.5MC	"	"	A6	"
6. "	"	"	43.0MC	"	"	A7	"
7. "	"	"	47.25MC	"	"	A8	Adjust for MINIMUM deflection.
8. "	"	43MC (10MC Swp)	43.25MC, 45.75MC	5	Vert. amp of scope thru detector (Fig. 1) to pin 5 (Plate) of 6CB6 (V3).	A12, A10, A13, A11	Connect a 180Ω carbon resistor from plate to screen of V3. Clip 330Ω resistors across primaries of L26 and L27. Preset A11 at minimum capacity. Adjust A12 and A10 for maximum gain at 43.5MC with 45.75MC at 70% response. Adjust A11 for proper band width. Adjust A13 for maximum gain. Retouch A10, A11 and A12, if necessary, for response similar to Fig. 3.
9. "	"	"	42.5MC, 45.0MC, 45.75MC, 46.5MC	"	Vert. amp to point $\odot$ . Low side to chassis.		Disconnect the 180Ω and the two 330Ω resistors. Adjust output of generator for 3 Volts peak to peak on scope. Retouch A5, A6 and A7 for response similar to Fig. 4.

# ALIGNMENT INSTRUCTIONS (CONT.)

## SOUND IF ALIGNMENT

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10. .001MFD	High side to pin 1 (grid) of 6AU6 (V9). Low side to chassis.	4.5MC (Unmod.)	Any not used locally.	DC probe to point . Common to chassis.	A14	Adjust for maximum deflection. Attenuate generator output for 6 volts at VTVM.
11. "	"	"	"	DC probe to point . Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat steps 10 and 11 making final adjustments with generator output set to produce 6 volts on VTVM at point .
12. "	"	"	"	DC probe to point . Common to chassis.	A16	Adjust for maximum as in Step 10.

## 4.5MC TRAP ALIGNMENT

Short pin 1 (grid) of 6CB6 (V5) to chassis to prevent noise from masking the output indication.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13. 1000Ω Resistor	High side thru 1000Ω to pin 2 (grid) of V6A. Low side to chassis.	Not used	4.5MC (400%Mod)	Any	Vert. Amp. thru detector (Fig. 1) to pin 6 (plate) of 6CL6 (V7). Low side to chassis.	A17	Set generator output to approximately .5 volts. Adjust A17 for MINIMUM 400% indication.

If receiver employs an RCA KRK11-B VHF tuner continue alignment with Step 14.  
If receiver employs an RCA KRK12 UHF-VHF tuner proceed to Step 34.

## KRK11-B TUNER ALIGNMENT

An RF unit which is operative and requires only minor touch-up adjustments will require no presetting of adjustments. Where complete alignment is necessary make the following pre-adjustments:  
Set A23 so that the screw head projects approximately 3/8" above chassis. Set A21 1/4 turn from maximum capacity. Disconnect the link from terminals "A" and "B" of L23 and terminate the link with a 390 carbon resistor. Connect the potentiometer arm of the bias supply to terminal 3 on the tuner. Connect the positive lead to tuner chassis. Adjust bias supply to produce -3.5 volts at AGC terminal of tuner.  
Tuner alignment as outlined below requires the use of a heterodyne frequency meter.  
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection. The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14. .0015MFD	Remove 6X8 (V2) from socket and twist one end of small piece of wire around pin 7. Replace tube in socket and connect high side of generator to free end of wire. Low side to chassis.	Not used	43.5MC (400%Mod)	2	Vert. Amp. to point . Low side to chassis.	A18	Adjust for MINIMUM 400% indication on scope. Remove the wire lead from pin 7 of V2 and replace V2 tube and shield.
15. "	RF input of heterodyne frequency meter to end of insulated wire inserted in hole in tuner provided for adjustment of A21.	"	Set freq. meter to 227MC	8	Not used	A19	Set fine tuning control 30 degrees clockwise from mechanical center of its range. Adjust for audible beat on frequency meter.
16. Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	183MC (10MC Swp)	181.25MC 185.75MC	"	Vert. Amp. to point . Low side to chassis.	A20, A21 A22, A23	Set A9 to maximum counter clockwise rotation. Adjust A20, A21, A22 and A23 for response similar to Fig. 5.
17. "	Connect frequency meter as in Step 15.	Not used	Freq. Meter to 129MC	6	Not used	A24	Adjust for audible beat on frequency meter.
18. Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	85MC (10MC Swp)	83.25MC 87.75MC	"	Vert. Amp. to point . Low side to chassis.	A25, A26 A27	Adjust for response similar to Fig. 5.

19. Turn off all generators, connect VTVM to point of chassis and adjust A28 for -3.5 volts or maximum if less than 3.5 volts.

20. Repeat step 18.

21. Repeat step 15.

22. Repeat step 16.

23. If A20 was adjusted in step 22 recheck voltage at point as in Step 19. If original setting of A28 was far off it may be necessary to alternately perform steps 15, 16 and step 19 several times before proper setting is obtained.

24. "	Connect frequency meter as in step 15.	Not used	Freq. meter to 257MC	13	Not used	A29	Adjust for audible beat on freq. meter. Slightly overshoot the adjustment a little more in same direction from original setting then adjust A19 to again obtain audible beat.
25. Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. to point . Low side to chassis.		Check for response similar to Fig. 5. If markers fall below 80% switch to channel 8 and readjust A20, A21, A22 and A23 as necessary.
		207MC (10MC Swp)	205.25MC 209.75MC	12			
		201MC (10MC Swp)	199.25MC 203.75MC	11			
		195MC (10MC Swp)	193.25MC 197.75MC	10			
		189MC (10MC Swp)	187.25MC 191.75MC	9			
		183MC (10MC Swp)	181.25MC 185.75MC	8			
		177MC (10MC Swp)	175.25MC 179.75MC	7			
26. "	Connect frequency meter as in Step 15.	Not used	Set freq. meter to 227MC	8	Not used		Check for audible beat on freq. meter. If necessary, adjust A19, overshoot the adjustment and correct by adjusting A29.

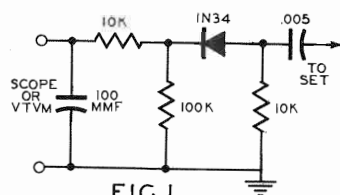
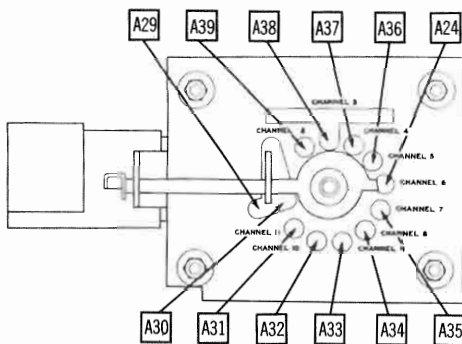


FIG. 1

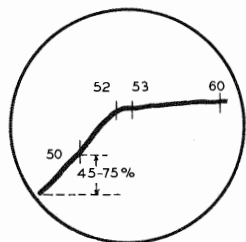


FIG. 2

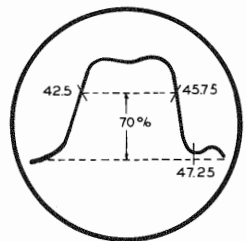


FIG. 3

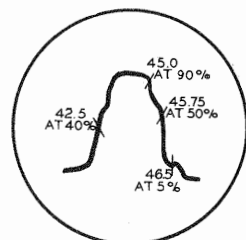


FIG. 4

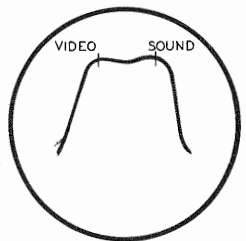


FIG. 5

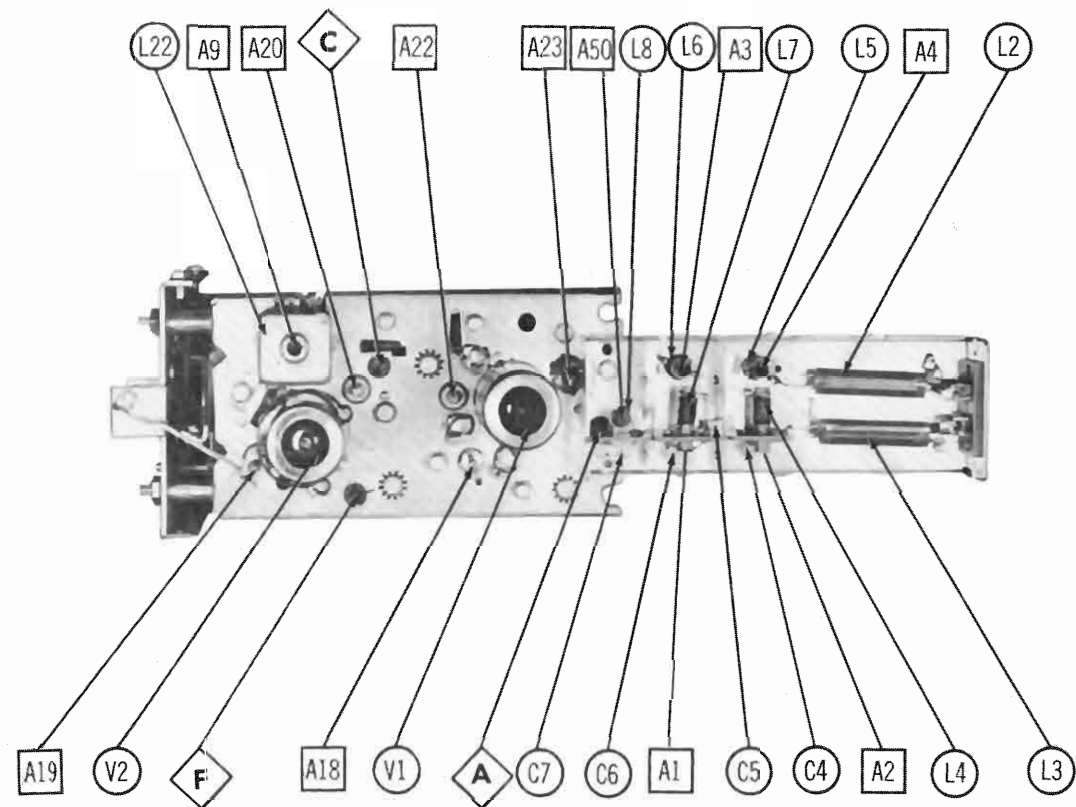
DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
27. "	Connect frequency meter as in step 15.	Not Used	Set freq. meter to 129MC	6	Not Used	A24	Adjust for audible beat on freq. meter.
28. Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	85MC (10MC Swp)	83.25MC 87.75MC	6	Vert. Amp. to point . Low side to chassis.		Check for response as in Fig. 5. If necessary retouch A25, A26 and A27.
29. "	"	57MC (10MC Swp)	55.25MC 59.75MC	2	"	A9	Adjust A9 clockwise to point where further adjustment causes no change in response curve.
30. Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	85MC (10MC Swp)	83.25MC 87.75MC	6	Vert. Amp. to point . Low side to chassis.		Check for response as in Fig. 5 and for proper oscillator injection voltage at point . If excessive tilt occurs on channel 2, 3 and 4 adjust A23 on channel 2 overshoot the correction of tilt then adjust A27 on channel 6 for maximum amplitude of response between markers. This should produce flat response on low channels if other adjustments, especially A25 are correct.
		79MC (10MC Swp)	77.25MC 81.75MC	5			
		69MC (10MC Swp)	67.25MC 71.75MC	4			
		63MC (10MC Swp)	61.25MC 65.75MC	3			
		57MC (10MC Swp)	55.25MC 59.75MC	2			
31. Check channels 7 thru 13 for proper response as in Step 25.							
32. "	Connect frequency meter as in step 15.	Not used	Set freq. meter to 257MC	13	Not used		Check for audible beat on frequency meter. Adjust A19 if necessary.
33. "			251MC	12		A30	Adjust for audible beat on frequency meter.
			245MC	11		A31	
			239MC	10		A32	
			233MC	9		A33	
			227MC	8		A34	
			221MC	7		A35	
			215MC	6		A24	
			209MC	5		A25	
			203MC	4		A26	
			197MC	3		A27	

## KRK12 TUNER VHF ALIGNMENT

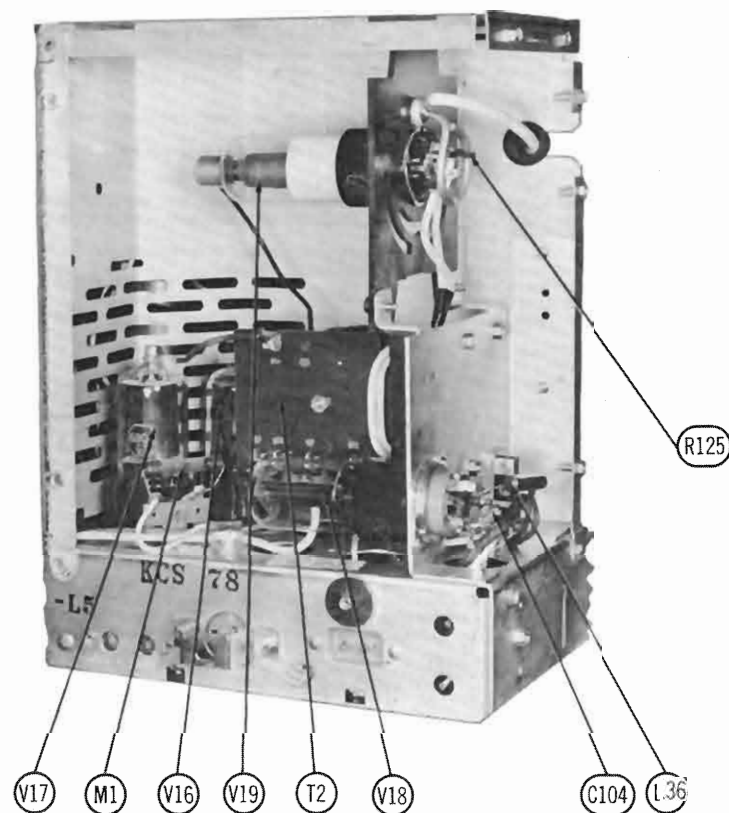
It is necessary to meter the non-oscillating plate current of the 684 voltage control tube. This can be accomplished by use of an adaptor or similar arrangement. The circuit diagram for the adaptor is shown in Fig. 6.  
Remove 684 from its socket and insert the adaptor plug. Plug 684 into adaptor.  
Connect 0-50 MA meter to adaptor and turn the switch on.  
Remove the tuner cover shield.  
Set channel selector midway between channels to disable local oscillator. Some tubes may oscillate even with the tuned circuits disconnected.  
As a check, short circuit the spring contacts 12 and 13, nearest the tuner front, with a finger. (Contacts are at zero DC potential). If plate current rises keep finger on contacts while adjusting the oscillator voltage control for 28 MA indication on meter.  
Replace tuner cover shield.  
The oscilloscope used should have sensitivity of 1 mill watt per inch. If sensitivity is less a suitable preamplifier may be used with the scope.  
A heterodyne frequency meter is used while making VHF oscillator adjustments.  
To find oscillator frequency for any UHF or VHF channel add 45.75MC to the picture carrier frequency for that channel as listed in the frequency chart.  
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection. The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.  
Set the fine tuning control to the mid-position of its range.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
34. None	Couple loosely to antenna terminals	Set sweep to cover channel being aligned. See channel frequency chart.	Set alternately to video and sound carrier frequency of channel being aligned see chart.	2 thru 13	Vert. Amp. to point . Low side to chassis.	A40 A41 A42 A43 See Remarks	Ground the AGC line at tuner terminal board. Turn off the adaptor switch, removing plate voltage from oscillator. Adjust for response similar to Fig. 7. Each channel strip adjustment for an individual channel strip has a corresponding adjustment on all other VHF channel strips. Since these adjustments are identical in position and function they are indicated by the same "A" number in the interests of simplification. Adjustments A40, A41 and A42 for each channel strip are accessible through holes in top of tuner as the channel switch is turned to each channel. Adjustment A43 refers to coupling capacitor whose positioning affects bandwidth of response curve.
35. "							Remove the ground placed on AGC line in above step. Turn the AGC control fully clockwise. Connect the potentiometer arm of the bias supply to the tuner AGC terminal. Connect the positive lead to the tuner case. Adjust for -5 volts at AGC terminal. Connect the potentiometer arm of a second bias supply to the junction of R28 and R29 and the positive lead to chassis. Adjust for -5 volts at potentiometer arm. Turn the 684 adaptor switch on to apply plate voltage to the oscillator. Connection of the heterodyne frequency meter for oscillator adjustment is made as follows: Insert the end of an insulated piece of wire into either of two holes next to the oscillator tube at the right top corner of the tuner. Use care so that wire does not touch any tuned circuits. Connect other end of wire to RF input of the frequency meter.
36. "	Connect frequency meter as above.	Not used	Freq. meter to 257MC	13	Not used	A44	Adjust for audible beat on freq. meter.
37. Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. to point . Low side to chassis.		Adjust A13 for maximum gain on scope. Adjust A42 for maximum gain and flat-topped curve. Recheck A13 for maximum gain at center of band.
38. "	Connect frequency meter as in Step 35.	Not used	Freq. meter to oscillator frequency, channels 12 thru 2 See chart.	12 thru 2	Not used	A44 A42	Adjust A44 on each channel for audible beat on freq. meter. Connect sweep generator and scope as in step 37, set sweep and marker to proper frequencies for each channel and adjust A42, if necessary, for maximum gain and proper response curve.
39. Direct	High side to point . Low side to chassis.	Not used	43.5MC (400%Mod)	Any	Vert. Amp. to point . Low side to chassis.	A45	Adjust for MINIMUM 400% indication on scope.

RCA VICTOR MODELS 17-T-301, U, 17-T-302, U, 17-T-310, U (Ch. KC578, B)



RF TUNER - TOP VIEW

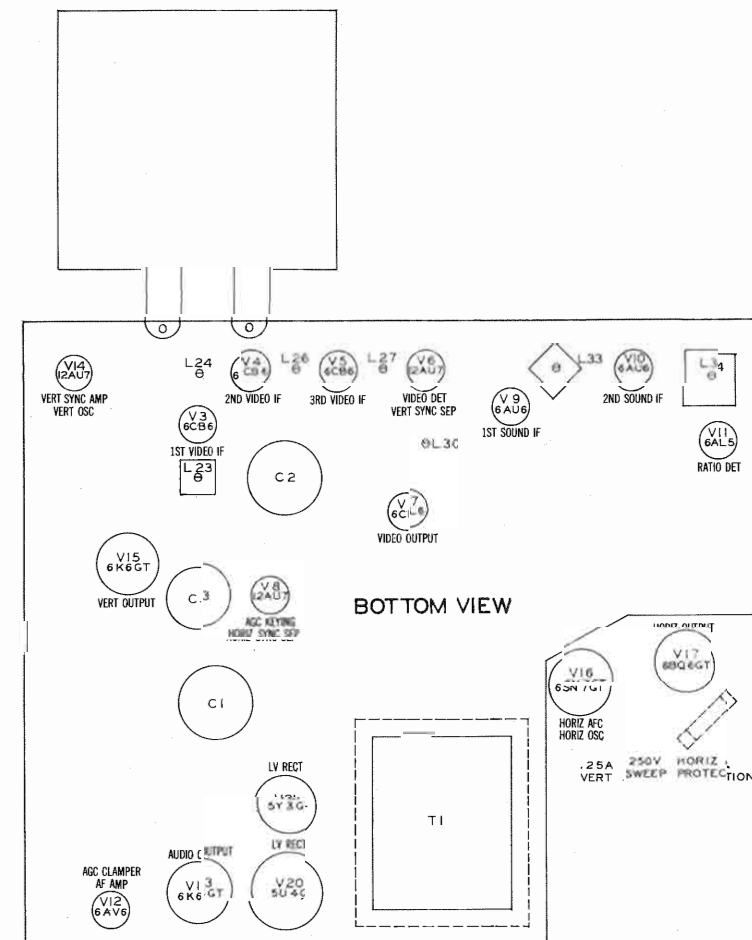


HIGH VOLTAGE COMPARTMENT

## RESISTANCE MEASUREMENTS

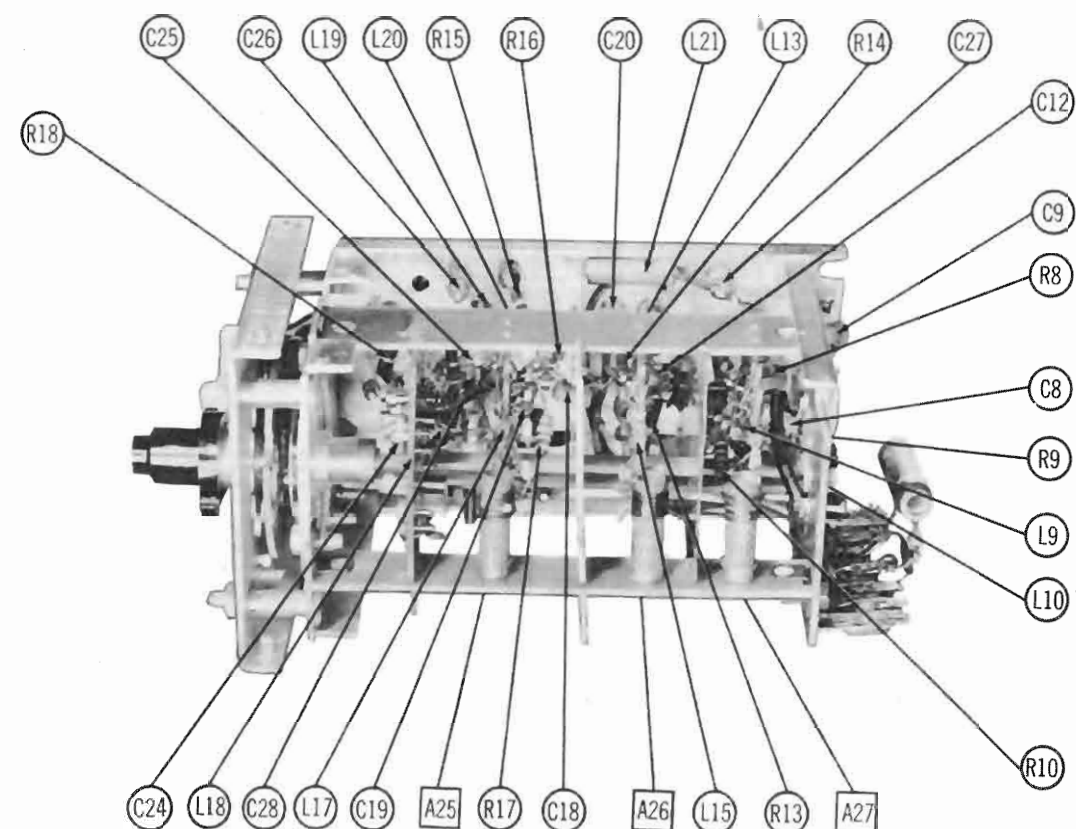
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7A	†1.5KΩ	†6.2Meg	†8.7Meg	0Ω	.1Ω	†6.7Meg	280KΩ	120Ω	0Ω
V 2	6X8	0Ω	100KΩ	†8KΩ	0Ω	.1Ω	0Ω	100KΩ	†3.7KΩ	†3.7KΩ
V 3	6CB6	40KΩ	68Ω	0Ω	.1Ω	†4.8KΩ	†4.8KΩ	0Ω		
V 4	6CB6	40KΩ	33Ω	.1Ω	0Ω	†4.8KΩ	†4.8KΩ	0Ω		
V 5	6CB6	.2Ω	180Ω	.1Ω	0Ω	†3.8KΩ	†3.8KΩ	0Ω		
V 6	12AU7	1.5Meg	3.9KΩ	.2Ω	.1Ω	.1Ω	†680KΩ	2.2Meg	0Ω	0Ω
V 7	6CL6	33Ω	3.9KΩ	†9.4KΩ	0Ω	.1Ω	†9KΩ	0Ω	†9.4KΩ	3.9KΩ
V 8	12AU7	200KΩ	4.5Meg	†4.3KΩ	0Ω	0Ω	†8.2KΩ	†23KΩ	680KΩ	.1Ω
V 9	6AU6	7Ω	0Ω	0Ω	.1Ω	†4.3KΩ	†4.3KΩ	82Ω		
V 10	6AU6	120KΩ	0Ω	0Ω	.1Ω	†10KΩ	†4.3KΩ	0Ω		
V 11	6AL5	10KΩ	10KΩ	.1Ω	0Ω	INF	0Ω	INF		
V 12	6AV6	10Meg	0Ω	0Ω	.1Ω	300KΩ	280KΩ	†330KΩ		
V 13	6K6GT	INF	0Ω	†2.2KΩ	†1.8KΩ	470KΩ	INF	.1Ω	560Ω	
V 14	12AU7	†13KΩ	70KΩ	0Ω	.1Ω	.1Ω	#3.4Meg	1.5Meg	0Ω	0Ω
V 15	6K6GT	INF	.1Ω	†570Ω	†4Ω	2.3Meg	1.1Meg	0Ω	550Ω	
V 16	6SN7GT	1.5Meg	†45KΩ	410KΩ	480KΩ	†47KΩ	0Ω	.1Ω	0Ω	
V 17	6BQ6GT	INF	.1Ω	INF	†6.8KΩ	460KΩ	100KΩ	0Ω	180Ω	Top Cap #14Ω
V 18	6W4GT	INF	INF	1 Meg	INF	†62Ω	INF	#29Ω	#29Ω	Top Cap #164Ω
V 19	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								
V 20	5U4G	INF	11KΩ	INF	12.1Ω	INF	13.2Ω	INF	11KΩ	
V 21	5Y3GT	INF	11KΩ	INF	13.2Ω	INF	12.1Ω	INF	11KΩ	
V 22	17CP4	0Ω	190KΩ	Pin 10 #325KΩ	Pin 11 160KΩ	Pin 12 1Ω				

† MEASURED FROM PIN 2 OF V21.  
# MEASURED FROM PIN 3 OF V18.

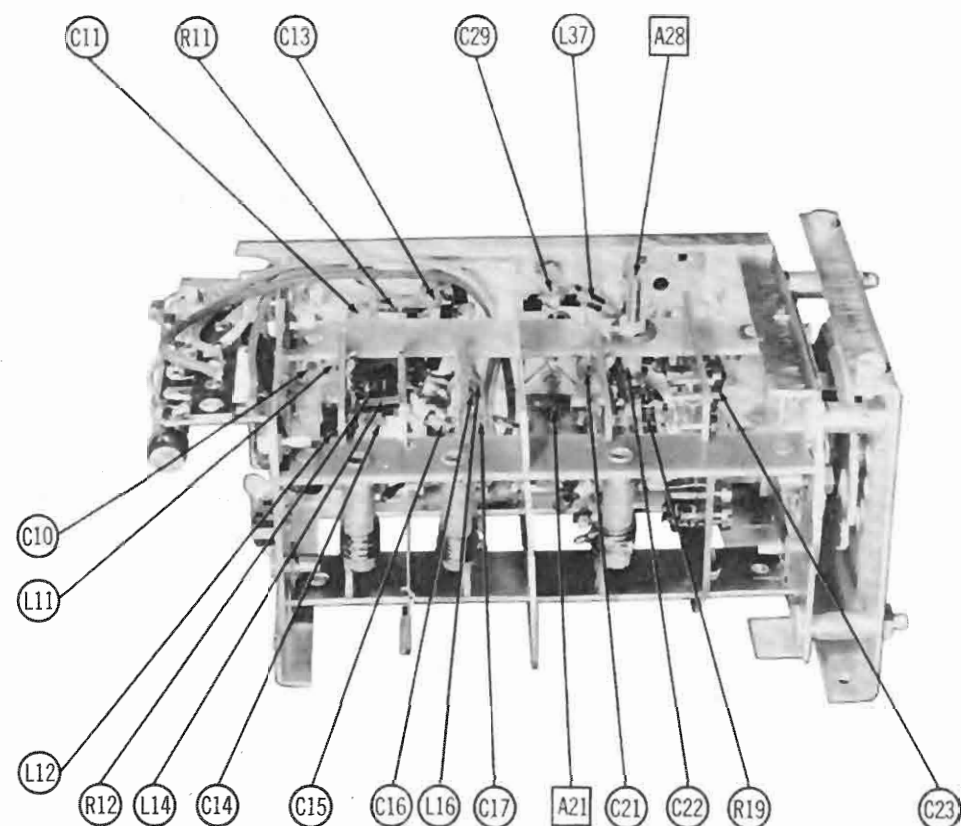


TUBE PLACEMENT CHART

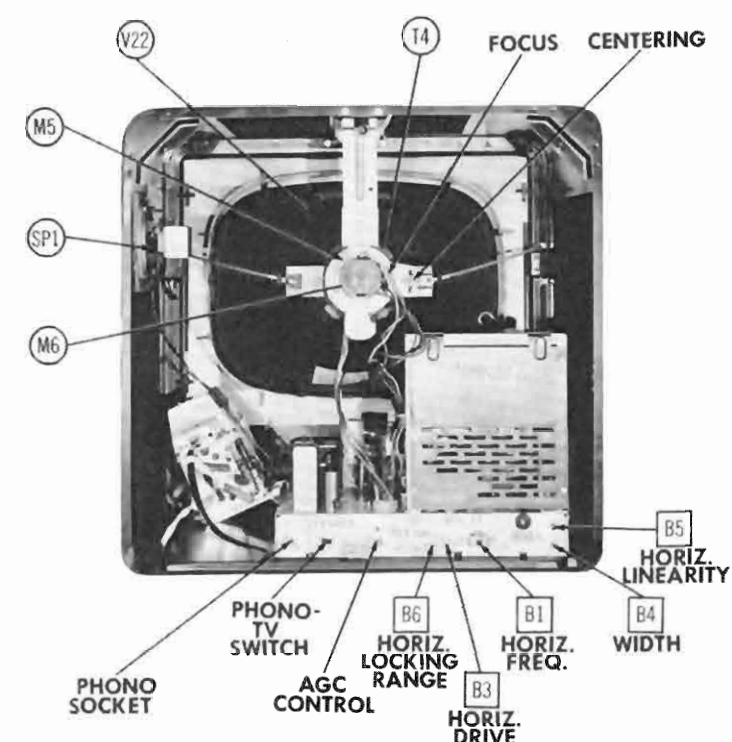
RCA VICTOR MODELS 17-T-301, U, 17-T-302, U,  
17-T-310, U (Ch. KCS78, B)



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



CABINET-REAR VIEW

## HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

### HORIZONTAL FREQUENCY ADJUSTMENT

Turn the set on and tune in a TV station, preferably a test pattern. If the picture cannot be synchronized horizontally with the horizontal hold control, adjust the horizontal frequency slug (B1) until picture will synchronize. If picture still will not synchronize, adjust the horizontal waveform slug (B2) several turns out of the coil and readjust B1 to synchronize the picture. If picture width or linearity is incorrect adjust the horizontal drive trimmer (B3) the width control slug (B4) and the horizontal linearity control slug (B5) for proper results.

### HORIZONTAL WAVEFORM ADJUSTMENT

The horizontal waveform adjustment is made at the factory and normally will require no readjustment. B1 and B2 are adjusted simultaneously while watching the picture. Set the horizontal hold control fully clockwise. Turn B1 until picture falls out of sync and 3 or 4 diagonal black bars sloping down to the right appear on the screen. Turn B2 clockwise, at the same time adjusting B1 to maintain 3 or 4 bars on screen. Continue adjusting B1 and B2 in that manner until the oscillator begins to motorboat, then adjust B2 counter clockwise until motorboating stops. To check adjustment turn B1 until picture synchronizes, then reverse the direction falls out of sync with diagonal bars sloping down to the right. Continue to turn B1 in same direction. No more than 3 or 4 bars should appear on screen. Instead the horizontal oscillator should start to motorboat. Retouch B2 until this condition is obtained. To observe the horizontal waveform connect the low capacity probe of an oscilloscope to terminal C of L35. Turn the horizontal hold 1/4 turn from counter clockwise so that picture is in sync. The waveform on the scope should appear as in Fig. 9. Adjust B2 for broad and narrow peaks of equal height as in Fig. 9. If necessary while adjusting B2 keep the picture in sync with the horizontal hold control.

### HORIZONTAL LOCKING RANGE ADJUSTMENT

With the horizontal hold control in full counter clockwise position momentarily interrupt the signal by switching off channel and back. If picture remains in sync turn B1 slightly and again switch off channel, repeating until picture loses sync with diagonal lines sloping down to the left. Slowly turn the horizontal hold control clockwise and note the least number of bars obtained just before the picture pulls into sync. If the number is more than 3 adjust the horizontal locking trimmer (B6) slightly clockwise. If the number is less than 2 adjust B6 counter clockwise. Recheck as above for the least number of bars and readjust B6, if necessary, until 2 or 3 bars are present. Turn the horizontal hold control fully clockwise and adjust B1 until the diagonal bar sloping down to the right appears on the screen, then reverse direction of adjustment of B1 until the diagonal bar just disappears, leaving the picture in synchronization.

### AGC CONTROL ADJUSTMENT

Connect an oscilloscope to pin 6 (plate) of 6CL6 (V7). Turn the AGC control fully counter clockwise. Tune in a strong TV signal and adjust the scope to see the video waveform. Turn the AGC control clockwise until the sync tips begin to be compressed, then counter clockwise just enough to remove the compression.

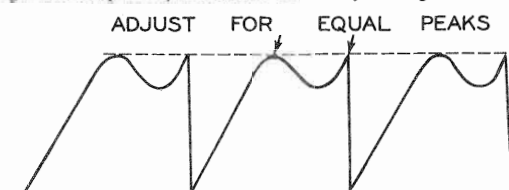
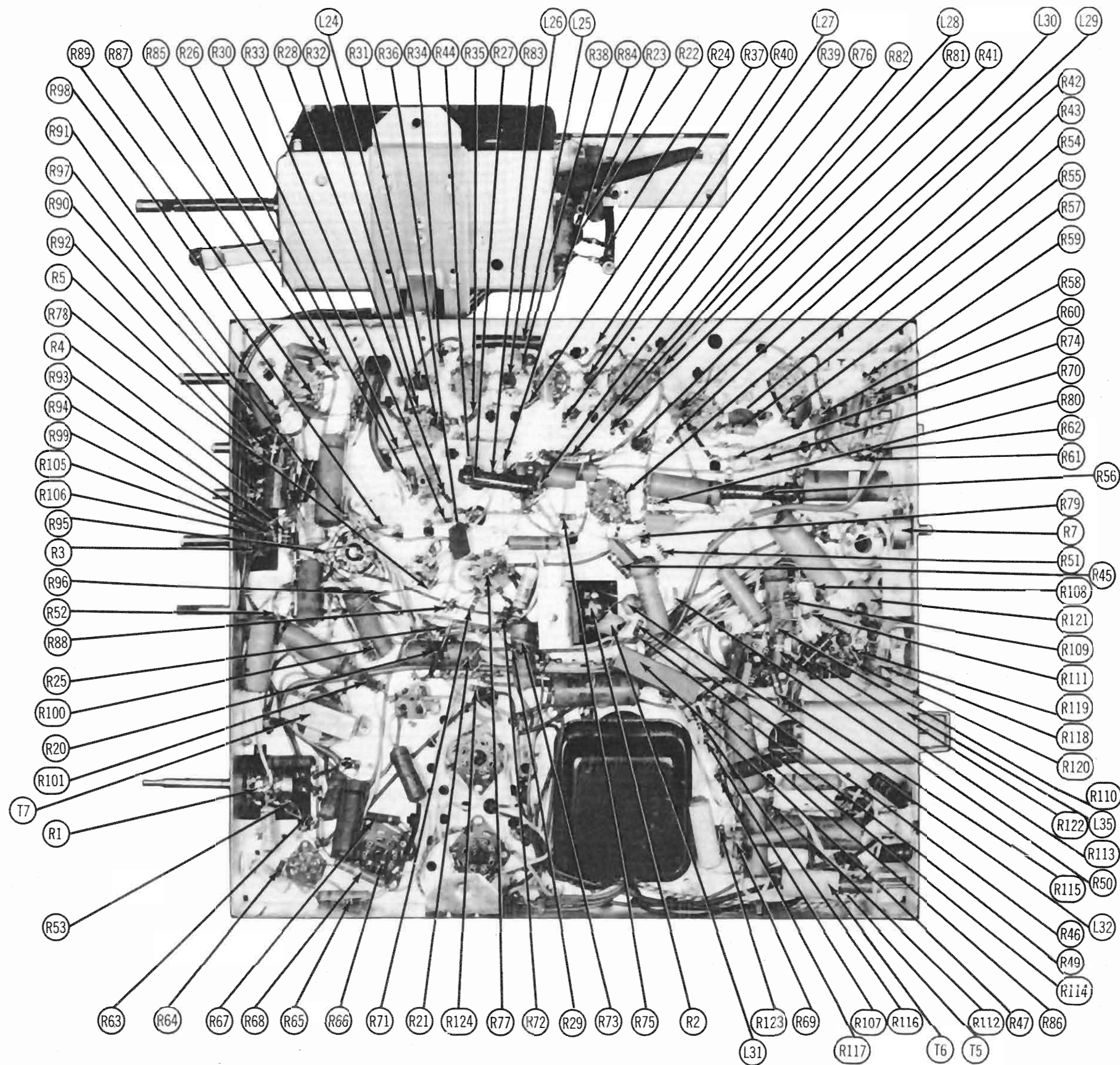


FIG. 9



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

RCA VICTOR MODELS 17-T-301, U, 17-T-302, U,  
17-T-310, U (Ch. KCS78, B)

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL	VERTICAL						
<p><u>LOSS OF SWEEP (Fig. 1)</u></p> <p>Check yoke. Check solder connections in yoke, yoke plug and socket.</p> <p><u>INSUFFICIENT SWEEP</u></p> <p>Check by substitution V16, V17, V18, V20 and V21. Check amplitude of waveform W15;</p> <table> <tr> <td>If Insufficient Check components of V16, Check C99 and R118.</td><td>If Sufficient Check Components of V17 and V18, especially R120, R121, R122, C100 and C101.</td></tr> </table> <p><u>DRIVE LINES</u></p> <p>Check by substitution V16 and V17. Check C99 and B3 (horizontal drive control).</p> <p><u>COMPRESSED AT LEFT SIDE</u></p> <p>Substitute V17 and V18. Check waveform W15;</p> <table> <tr> <td>If Unsatisfactory Check coupling network between V16 and V17.</td><td>If Satisfactory Check T3 and T6. Check associated components.</td></tr> </table> <p><u>FOLDS</u></p> <p>Substitute V18. Check C102, C103, C93 and C104. Check associated components.</p>	If Insufficient Check components of V16, Check C99 and R118.	If Sufficient Check Components of V17 and V18, especially R120, R121, R122, C100 and C101.	If Unsatisfactory Check coupling network between V16 and V17.	If Satisfactory Check T3 and T6. Check associated components.	<p><u>LOSS OF SWEEP</u></p> <p>Check V14 and V15. Check waveform W8;</p> <table> <tr> <td>If Unsatisfactory Check components of vertical oscillator and coupling capacitor C80.</td><td>If Satisfactory Check R6, R97, R98, R99, T4 and associated components.</td></tr> </table> <p><u>INSUFFICIENT SWEEP</u></p> <p>Substitute V14 and V15. Check associated components, especially C79 for leakage and C74 for open.</p> <p><u>COMPRESSED AT BOTTOM</u></p> <p>Substitute V14 and V15. Check C3A for open and C76 for leakage.</p> <p><u>COMPRESSED AT TOP</u></p> <p>Substitute V13 and V14. Check coupling network between V14 and V15.</p> <p><u>COMPRESSED AT TOP, STRETCHED AT BOTTOM</u></p> <p>Check C77 for leakage. Check V15 and yoke components.</p> <p><u>FOLDS</u></p> <p>Substitute V15. Check T5 and components.</p>	If Unsatisfactory Check components of vertical oscillator and coupling capacitor C80.	If Satisfactory Check R6, R97, R98, R99, T4 and associated components.
If Insufficient Check components of V16, Check C99 and R118.	If Sufficient Check Components of V17 and V18, especially R120, R121, R122, C100 and C101.						
If Unsatisfactory Check coupling network between V16 and V17.	If Satisfactory Check T3 and T6. Check associated components.						
If Unsatisfactory Check components of vertical oscillator and coupling capacitor C80.	If Satisfactory Check R6, R97, R98, R99, T4 and associated components.						

SYNC

HORIZONTAL	VERTICAL				
<p><u>LOSS OF SYNC</u></p> <p>Substitute V6, V13 and V16. Check waveform W12;</p> <table> <tr> <td>If Unsatisfactory Check components of V6B and V14A. Check coupling from V14A to V16.</td><td>If Satisfactory Check V16 components, particularly C93 for leakage and C95 for open.</td></tr> </table> <p><u>CRITICAL SYNC</u></p> <p>Check C94 for open.</p> <p><u>PULLING PICTURE</u></p> <p>Check C88 and C92 for open. Fig. 2 results from C95 being open.</p>	If Unsatisfactory Check components of V6B and V14A. Check coupling from V14A to V16.	If Satisfactory Check V16 components, particularly C93 for leakage and C95 for open.	<p><u>LOSS OF SYNC</u></p> <p>Substitute V6, V14 and V16. Check waveform W7;</p> <table> <tr> <td>If Unsatisfactory Check components of V6 and V14. Check C72 and C73 for leakage.</td><td>If Satisfactory Check components of V14 plate and cathode circuits.</td></tr> </table> <p><u>CRITICAL SYNC</u></p> <p>Substitute V6, V14 and V15. Check associated components for change in values.</p> <p><u>TRIGGERING</u></p> <p>Substitute V14. Check filament lead dressing around grid circuit.</p>	If Unsatisfactory Check components of V6 and V14. Check C72 and C73 for leakage.	If Satisfactory Check components of V14 plate and cathode circuits.
If Unsatisfactory Check components of V6B and V14A. Check coupling from V14A to V16.	If Satisfactory Check V16 components, particularly C93 for leakage and C95 for open.				
If Unsatisfactory Check components of V6 and V14. Check C72 and C73 for leakage.	If Satisfactory Check components of V14 plate and cathode circuits.				

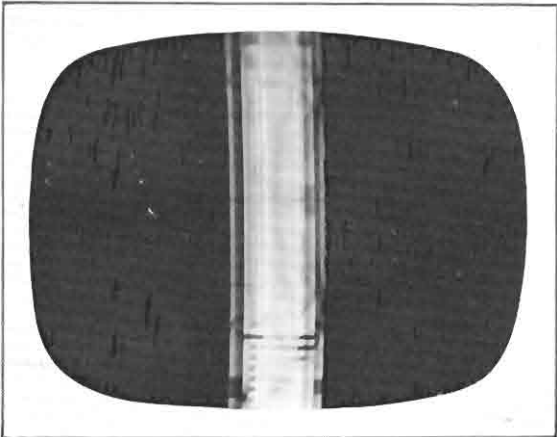


Fig. 1.



Fig. 2.

TROUBLE SHOOTING AIDS (CONT.)

VIDEO

<p><u>SOUND BARS</u></p> <p>Check adjustment of A17 (4.5 MC trap) in video amplifier grid circuit. Check local oscillator adjustment video IF alignment.</p> <p><u>POOR RESOLUTION</u></p> <p>Check by substitution video IF tubes. Check alignment of video IF stages.</p> <p><u>SMEAR</u></p> <p>Check video amplifier V7 and associated components, particularly the peaking coils.</p> <p><u>ONE WIDE BLACK BAR</u></p> <p>Check tuner, video IF, video detector and video amplifier tubes for filament to cathode leakage.</p>	<p><u>POOR CONTRAST</u></p> <p>Check waveform W1;</p> <table> <tr> <td>If Unsatisfactory Check V3, V4, V5 and V6. Check alignment.</td><td>If Satisfactory Check waveform W2.</td></tr> </table> <p>Check waveform W2;</p> <table> <tr> <td>If Unsatisfactory Substitute V7 and check associated components.</td><td>If Satisfactory Check picture tube and grid circuit components.</td></tr> </table>	If Unsatisfactory Check V3, V4, V5 and V6. Check alignment.	If Satisfactory Check waveform W2.	If Unsatisfactory Substitute V7 and check associated components.	If Satisfactory Check picture tube and grid circuit components.
If Unsatisfactory Check V3, V4, V5 and V6. Check alignment.	If Satisfactory Check waveform W2.				
If Unsatisfactory Substitute V7 and check associated components.	If Satisfactory Check picture tube and grid circuit components.				

AUDIO

<p><u>WEAK OR NO SOUND</u></p> <p>Substitute V9, V10, V11, V12 and V13. Check associated components. Check speaker. Check sound IF and ratio detector alignment. Check function switch contacts.</p> <p><u>BUZZ</u></p> <p>Adjust ratio detector secondary for minimum buzz. If still noticable, substitute V11 and readjust.</p>	<p><u>DISTORTED</u></p> <p>Check audio amplifier stages V12 and V13 using audio signal generator and scope;</p> <table> <tr> <td>If Undistorted Substitute V9, V10 and V11. Check adjustment of ratio detector.</td><td>If Distorted Check components of stage where distortion occurs.</td></tr> </table>	If Undistorted Substitute V9, V10 and V11. Check adjustment of ratio detector.	If Distorted Check components of stage where distortion occurs.
If Undistorted Substitute V9, V10 and V11. Check adjustment of ratio detector.	If Distorted Check components of stage where distortion occurs.		

HIGH VOLTAGE

<p><u>LOSS OF HIGH VOLTAGE</u></p> <p>Check by substitution V16, V17, V18 and V19. Check fuse in high voltage cage. Check waveform W15;</p> <table> <tr> <td>If Unsatisfactory Check horizontal oscillator components and coupling network between V16 and V17.</td><td>If Satisfactory Check components of V18. Check T3 and T5. Check all associated components.</td></tr> </table> <p><u>WEAK HIGH VOLTAGE</u></p> <p>Follow procedure outlined under loss of high voltage.</p>	If Unsatisfactory Check horizontal oscillator components and coupling network between V16 and V17.	If Satisfactory Check components of V18. Check T3 and T5. Check all associated components.	<p><u>BLOOMING</u></p> <p>Substitute V17, V19, V20 and V21. Check associated components. Check picture tube.</p> <p><u>LOSS OF FOCUS</u></p> <p>Check C100 for open. Follow procedure outlined under blooming.</p>
If Unsatisfactory Check horizontal oscillator components and coupling network between V16 and V17.	If Satisfactory Check components of V18. Check T3 and T5. Check all associated components.		

POWER

<p><u>DIM PICTURE</u></p> <p>Measure B plus;</p> <table> <tr> <td>If Low Substitute V20 and V21. Check for shorts.</td><td>If Normal Check V18 and boost B plus circuit.</td></tr> </table>	If Low Substitute V20 and V21. Check for shorts.	If Normal Check V18 and boost B plus circuit.	<p><u>SMALL RASTER, WEAK SOUND</u></p> <p>Check B plus circuits for shorts. If no shorts are present and B plus is low, check V20 and V21.</p>
If Low Substitute V20 and V21. Check for shorts.	If Normal Check V18 and boost B plus circuit.		

GENERAL

<p><u>RASTER, BUT NO PICTURE, SOUND OR SNOW</u></p> <p>Check by substitution V2, V3, V5, V6 and V7. Check associated components.</p> <p><u>WEAK PICTURE AND WEAK SOUND</u></p> <p>Substitute V4 and check components</p>	<p><u>SOUND BUT NO PICTURE</u></p> <p>Check by substitution V8 and V14. Check associated components.</p> <p><u>SNOWY PICTURE, GOOD SOUND</u></p> <p>Substitute V1 and check components.</p> <p><u>INTERMITTANT STREAKS</u></p> <p>Check high voltage circuit for corona discharge and arcing. This may best be done by looking for a blue glow in the dark.</p>
--	---

The Trouble-Shooting photographs shown above are made with permission of transmitting station WFBM-TV and in no way reflect the quality of the transmitted picture. Similarly, symptoms shown are assumed and are not indicative of the quality and workmanship of this receiving equipment.

RCA VICTOR MODELS 17-T-301, U, 17-T-302, U, 17-T-310, U (Ch. KCS78, B)

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M3A	RF Tuner	KRK11B	Models 17-T-301, 17-T-302 and 17-T-310
B	RF Tuner	KRK12	Models 17-T-301U, 17-T-302U and 17-T-310U
M4	Switch	33491	TV-Phono Selector
M5	Focus Magnet	76168	Includes centering device
M6	Ion Trap	76317	
All	Trimmer Capacitor	71496	IF Link, 5-70MMF
B3, B6	Trimmer Capacitor	75217	Horiz. Locking, horizontal drive, dual 10-160MMF
	Back (Cabinet)	77698	Models 17-T-301, 17-T-301U, 17-T-302U, 17-T-302
	Back (Cabinet)	77713	Models 17-T-310 and 17-T-310U
	Safety Glass	77703	Maroon or Mahogany instruments
	Safety Glass	77722	Blonde Mahogany instruments, Models 17-T-310 or 17-T-310U
	Retainer (Glass)	77704	Maroon or Mahogany instruments
	Retainer (Glass)	77723	Blonde Mahogany instruments, Models 17-T-310 or 17-T-310U
	Mask	77702	Maroon or Mahogany instruments
	Mask	77721	Blonde Mahogany instruments, Models 17-T-310 or 17-T-310U
	Knob	77709	Brightness, Maroon or Mahogany instruments
	Knob	77718	Brightness, Blonde mahogany instruments, Models 17-T-310 and 17-T-310U
	Knob	77708	Channel Selector, Models 17-T-301, 17-T-302 and 17-T-310
	Knob	77751	Channel Selector, Maroon or Mahogany instruments, Models 17-T-301U, 17-T-302U and 17-T-310U
	Knob	77707	Fine Tuning, Maroon or Mahogany instruments, Models 17-T-301, 17-T-302 and 17-T-310
	Knob	77750	Fine Tuning, Models 17-T-301U, 17-T-302U and 17-T-310U
	Knob	77717	Fine Tuning, Blond Mahogany instruments, Model 17-T-310.
	Knob	77699	Picture Contrast, Maroon or Mahogany instruments
	Knob	77719	Picture Contrast, Blonde Mahogany instruments, Models 17-T-310 and 17-T-310U
	Knob	77710	Off/On Volume

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	NOTES
		RCA Victor PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6BQ7A	6BQ7A	9AJ	
V2	Converter	6X8	6X8	9AK	
V3	1st Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd Video IF Amp.	6CB6	6CB6	7CM	
V6	AGC Rect. -Video Detector-Vert. Sync Sep.	12AU7	12AU7	9A	
V7	Video Output	6CL6	6CL6		
V8	AGC Keying	12AU7	12AU7	9A	
V9	Horiz. Sync Sep.	6AU6	6AU6	7BK	
V10	1st Sound IF Amp.	6AU6	6AU6	7BK	
V11	2nd Sound IF Amp.	6AL5	6AL5	6BT	
V12	Ratio Detector	6AL5	6AL5		
V13	AF Amplifier	6AV6	6AV6	7BT	
V14	AGC Clamper	6K6GT	6K6GT	7S	
V15	Audio Output	12AU7	12AU7	9A	
V16	Sync Amp.	6K6GT	6K6GT	7S	
V17	Vert. Mult. Output	6K6GT	6K6GT		
V18	Horiz. AFC	6SN7GT	6SN7GT	8BD	
V19	Horiz. Oscillator	6BQ6GT	6BQ6GT	6AM	
V20	Damper	6W4GT	6W4GT	4CG	
V21	HV Rectifier	1B3GT	1B3GT	3C	
	LV Rectifier	5U4G	5U4G	5T	
		5Y3GT	5Y3GT	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA			RTMA BASE TYPE	NOTES
	RCA Victor PART No.	SYLVANIA PART No.			
V22	17CP4	17CP4		12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	.80	400	77644	AFH2-63		CO36		FP245.3	TVL-2673	
B	.20	400								
C2A	.100	400		AFH3-40				FP431.4	TVL-3672	
B	.10	350	76970	PRS50/25						
C	.20	50								
C3A	.150	50		AFH3-112						
B	.10	350	75218							
C	.5	350								
C4	.18									
C5	.5		93056	SI5NP0	TCZ-4.7		NP0K-050	ZT-555	5TCCB-V47	
C6	.27		70935				NP0K-270			
C7	.33		76739	SI33NP0	TCZ-33		NP0K-330	ZT-5433	5TCC-Q33	
C8	.22		76557	SI22	D6-220		GPIK-220	UC-5422	5GA-Q22	
C9	1500		73748	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C10	1-4		76532		829-4					
C11	1500		73748	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C12	1500		73748	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C13	1500		75166	CS-1B-0015	SI-152				501C-1500	
C14	1500		73748	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C15	.8		70597				NP0K-080			
C16	.8-3.8		75184							
C17	.270		75199	SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C18	.270		75199	SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C19	.470			SI470	D6-471		GP2K-471	UC-5347	5GA-T47	
C20	1500		75166	CS-1B-0015	SI-152				501C-1500	
C21	.8-3.8		75184							
C22	.8-3		77151							
C23	.10		55326	SI0N080	829-3		N080-331-100	CT565A		
C24	.68		71504				NP0K-R68			
C25	.22		76558	SI22N750	TCN-22		N750K-220			
C26	1500		75166	CS-1B-0015	SI-152				5TCU-Q22	
C27	1500		75166	CS-1B-0015	SI-152				501C-1500	
C28	1500		75610	SI500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C29	1500		75166	CS-1B-0015	SI-152				501C-1500	
C30	.470		77293	BPD-00047	DD-471	TM5T5	GP2K-471	UC-5347	5GA-T47	Note 1
C31	10000		73960	BPD-01	DD-1032	TM5S1	811-01	DC-511	5HK-S1	Note 1
C32	.047	400	73553	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	Note 1
C33	.470		77293	BPD-00047	DD-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C34	.470		77293	BPD-00047	DD-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C35	.470		77293	BPD-00047	DD-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C36	.470		77293	BPD-00047	DD-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C37	.47	200	73787	P288-47		PJ2P5		PT405	2TM-P47	
C38	.470		77293	BPD-00047	DD-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C39	.470		77293	BPD-00047	DD-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C40A	.470		77672	BPD-00047	DD-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
B	.470			BPD-00047	DD-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C41	10000		73960	BPD-01	DD-1032	TM5S1	811-01	DC-511	5HK-S1	
C42	.10		33098	SI0N750	TCN-10		N750K-100	NT-541	5TCU-Q1	
C43	.470		77293	BPD-00047	DD-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C44	.47				TCZ-47		NP0-333-470		5TCC-Q47	
C45	.0047	600	73920	P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C46	.270	500	39638	I469-0003		5R5T3		MCB241	MS-33	
C47	.39		73644							
C48	.15		39044		TCN-39		N750K-390		5TCU-Q15	
C49	.1	200	73784	P268-1	DF-104	PJ2P1	N750K-150	PT401	2TM-P1	
C50	.1	400	73551	P468-1	DF-104	PTE4P1		PT401	4TM-P1	
C51	.0022	600	73595	P688-0022	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C52	.001	600	75643	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	

RCA VICTOR MODELS 17-T-301, U, 17-T-302, U, 17-T-310, U (Ch. KC578, B)

## PARTS LIST AND DESCRIPTIONS (Continued)

## CAPACITORS (CONT.)

ITEM No.	RATING		REPLACEMENT DATA							NOTES				
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.					
C53	470	1500	77673	{ BPD-01 BPD-01 BPD-01 BPD-01	DD-3-103	TM5DS1	{ 81L-01 81L-01 81L-01 81L-01	DC-511 DC-511 DC-511 DC-511	{ 5HK-2S1  5HK-S1 5HK-S1					
C54A	10000		76991											
C55	10000		73960											
C56	10000		73960											
C57	470	500	39644											
C58	470	200	39644											
C59	.47	200	73787											
C60	.0022	600	73595											
C61	.0047	500	73920											
C62	.033	200	73552											
C63	.01	400	73561											
C64	.001	600	75643											
C65	.22	200	73794											
C66	.01	400	73561											
C67	.0027	1000	73818											
C68	330	500	39640											
C69	.1	400	73551											
C70	.033	400	73552											
C71	.0082	400	73806											
C72	.001	600												
C73	390	1000	73094											
C74	.0047	600	73920											
C75	.0015	1000	77123											
C76	.033	600	73596											
C77	.0022	600	73595											
C78	.068	200	73792											
C79	.1	400	73551											
C80	.1	600	73557											
C81	.022	600	73786											
C82	.047	600	73592											
C83	.0047	600	73920											
C84	.1	400	73551											
C85	.0039	600	73796											
C86	270	1000	76579											
C87	220	500	39636											
C88	82	1000	76474											
C89	.001	600	75643											
C90	66	1000	76475											
C91	12		33380											
C92	.047	400	73553											
C93	.1	400	73551											
C94	.022	400	73562											
C95	.47	200	73787											
C96	330	1000	76476											
C97	.01	600	73594											
C98	.0012	600	76995											
C99	.00068	600	76479											
C100	.1	600	73557											
C101	.27	200	73786											
C102	.022	1000	73810											
C103	.027	1000	73811											
C104	270	1000	76579											
C105	.1	600	73557											
C106	.022	1000	73810											
C107	500	20000	76461											
C108	.91	2000												
C109	.047	400	4892X-05											
C110	.047	400	4892X-05											

Note 1. Not used in Ch. KCS78B.

Note 2. Some Models use .0047MFD in this application (part #73920).

Note 3. Some Models use .01MFD in this application (part #73594).

## CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST- ANCE	WATTS	RCA Victor PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A B C	200KΩ 1 Meg Switch	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	77641	QJ-447*	RTV-406		U1254L U116-LT254 IS-26	Brightness-Panel Volume Tap@ 250KΩ-Rear Attach to R1B Contrast Tap@ 4875Ω & 10KΩ Horiz. Hold Attach to R3A Vert. Linearity Attach to R4A Height-Note Attach to R5A Vert. Hold Attach to R6A AGC Attach to R7A
R2	15KΩ	$\frac{1}{2}$	76445	Q13-118XX				
R3A B	75KΩ Shaft	$\frac{1}{2}$ $\frac{1}{2}$	77639 Not Req.	Q1-125 Not Req.	AG-47-S KSS-3	AB-35 AK-4	J-41 Not Req.	
R4A B	1000Ω Shaft	$\frac{1}{2}$ $\frac{1}{2}$	77643 Not Req.	Q1-108 SQ	AG-8-S KSS-3	AB-5 AK-1	J-4 Not Req.	
R5A B	3 Meg Shaft	$\frac{1}{2}$ $\frac{1}{2}$	77924 Not Req.	Q1-140 SQ	AG-85-S KSS-3	AB-84 AK-1	J-50 Not Req.	
R6A B	1.2Meg Shaft	$\frac{1}{2}$ $\frac{1}{2}$	77642 Not Req.	Q1-138 NotReq.	AG-83-S KSS-3	AB-69 AK-4	U-155 Not Req.	
R7A B	500KΩ Shaft	$\frac{1}{2}$ $\frac{1}{2}$	76975 Not Req.	Q1-133 Not Req.	AG-58-S FKS-1/4	AB-59 AK-1	SU-50 Not Req.	

Note. Some models may use a 2.5Meg control in this application.

† UNIVERSAL REPLACEMENT-KIT K-2, BASE ELEMENTS &amp; SHAFTS B11-129 &amp; P1-200 (Panel)

\* CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS &amp; SHAFTS B11-129 &amp; P1-200 (Panel)

B13-137X &amp; R1-216 (Rear) &amp; SWITCH 76-1.

## RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		NOTES
		RCA Victor PART No.	IRC PART No.	
R8	3300Ω-5%	503233	BTS-3300-5%	
R9	150Ω	503115	BTS-150	
R10	3300Ω	503233	BTS-3300	
R11	120Ω	503112	BTS-120	
R12	470KΩ	503447	BTS-470K	
R13	1000Ω	503210	BTS-1000	
R14	1000Ω	503210	BTS-1000	
R15	100KΩ	503410	BTS-100K	
R16	100KΩ	503410	BTS-100K	
R17	3300Ω	503233	BTS-3300	
R18	100KΩ	503410	BTS-100K	
R19	4700Ω	503247	BTS-4700	
R20	1.8Meg-5%	11769	BTS-1.8Meg-5%	

ITEM No.	RATING	REPLACEMENT DATA		NOTES
		RCA Victor PART No.	IRC PART No.	
R21	180KΩ-5%	502418	BTS-180K-5%	
R22	470Ω	503147	BTS-470	
R23	10KΩ	77669	1 3/4A-10K	
R24	4000Ω	77668	1 3/4A-4000	
R25	8.2Meg	503582	BTS-8.2Meg	
R26	1000Ω	503210	BTS-1000	
R27	3800Ω	77671		
R28	1000Ω	503210	BTS-1000	
R29	120KΩ-5%	502415	BTS-120K-5%	
R30	68Ω-5%	34763	BTS-68-5%	
R31	1000Ω	503210	BTS-1000	
R32	56KΩ-5%	503356	BTS-56K-5%	
R33	39KΩ	503339	BTS-39K	
R34	33Ω-5%	30789	BTS-33Ω-5%	

## RESISTORS (CONT.)

ITEM No.	RATING	REPLACEMENT DATA		NOTES
		RCA Victor PART No.	IRC PART No.	
R35	1000Ω	503210	BTS-1000	
R36	1 Meg	503210	BTS-1 Meg	
R37	56KΩ-5%	502256		
R38	180Ω-5%	502118	BTS-180-5%	
R39	470Ω	503147	BTS-470	
R40	47KΩ	503347	BTS-47K	
R41	3.9Meg	503539	BTS-3.9Meg	
R42	3900Ω-5%	502239	BTS-3900-5%	
R43	33Ω	503033	BTS-33	
R44	5600Ω	513256	BTA-5600	
R45	2200Ω	523222	BTB-2200	
R46	10KΩ	503030	BTS-10K	
R47	6750Ω	76642		
R48	68Ω	503168	BTS-68Ω	
R49	2200Ω	503222	BTS-2200	
R50	220KΩ	503422	BTS-220K	
R51	470KΩ	503447	BTS-470K	
R52	150KΩ	503415	BTS-150K	
R53	220KΩ	503422	BTS-220K	
R54	82Ω	503082	BTS-82	
R55	1000Ω	513210	BTA-1000	
R56	3300Ω	77670		
R57	1000Ω	503210	BTS-1000	
R58	10KΩ	513310	BTA-10K	
R59	47Ω	503047	BTS-47	
R60	39KΩ	503339	BTS-39K	
R61	10KΩ-5%	502310	BTS-10K-5%	
R62	10KΩ-5%	502310	BTS-10K-5%	
R63	12KΩ-5%	502312	BTS-12K-5%	
R64	10Meg	503610	BTS-10Meg	
R65	330KΩ	503433	BTS-330K	
R66	470KΩ	503447	BTS-470K	
R67	560Ω	513156	BTA-560	
R68	1800Ω	523218	BTB-1800	
R69	6800Ω	513268	BTA-6800	
R70	470KΩ	503447	BTS-470K	
R71	3.9Meg	503539	BTS-3.9Meg	
R72	47KΩ	503347	BTS-47K	
R73	68KΩ	503368	BTS-68K	
R74	390KΩ	503439	BTS-390K	
R75	18KΩ	503318	BTS-18K	
R76	120KΩ	503412	BTS-120K	
R77	680KΩ	503468	BTS-680K	
R78	6750Ω	502262	BTS-6750	
R79	22KΩ	503322	BTS-22K	
R80	270KΩ	503427	BTS-270K	
R81	2.2Meg	503522	BTS-2.2Meg	

Note 1. Not used in chassis KCS78B.

Note 2. Some models use a 150KΩ resistor in this application.

Note 3. Some models use a 43KΩ resistor in this application.

Note 4. Some models use a 470KΩ resistor in this application.

Note 5. Some models use a 1.5Meg resistor in this application.

Note 6. Some models use a 100KΩ resistor in this application.

Note 7. Some models use a 390Ω resistor in this application.

Note 8. Not used in all models.

## TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA					
		PRI.	SEC. 1	SEC. 2	SEC. 3	RCA Victor PART No.	STANCOR PART No.
T1	117VAC @1.98	562VCT	5VAC	6.3VAC	1.2A	77635	P-8167
		.290ADC	3.5A	SEC. 4	6.3VAC		
				SEC. 7, 7A			

① Drill new mounting hole.

## TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING	REPLACEMENT DATA						NOTES
		DC RESISTANCE	RCA Victor PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
T2	201Ω tap	0Ω	76795		HVO-9		D-19 ①	
T3	24Ω	15Ω	7636	A-8113	A-3038	TSO-7	A-99X ②	
T4	530Ω		7697	DY-9A ⑤	MDF-70	TY-3	Y-17	
T5	44Ω		76442	WC-5 ③	MWC-1 ③	TWL-1	WC-12 ⑤	
T6	12Ω		76441	WC-5 ③	MWC-1 ③	TWL-1	WC-11 ④	

① Connect term 7 to term 8.

② Drill one new mounting hole.

③ Enlarge mounting hole.

④ Do not use secondary.

⑤ Connect to output holes &amp; red dot terminals.

⑥ Use original horizontal deflection coil network if necessary.

## TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA						NOTES
		IMPEDANCE	DC RES.	RCA Victor PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
T7	6.4KΩ	3 4Ω	322Ω	76982	A-3878	A-2931	RO-13	

## SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	RCA Victor PART No.	JENSEN PART No.	QUAM PART No.	
SP1	5"	PM	3.4Ω	77000	ST-145	3A07	① 8" Speaker used in Models 17-T-310 and 17-T-310U

## FILTER CHOKE

ITEM No.	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 Ω)	REPLACEMENT DATA		
				RCA Victor PART No.	STANCOR PART No.	MERIT PART No.
L1	.290ADC	41Ω	1.06 Hy.	77676	C-232 ①	C-2996 ①

① Drill one new mounting hole.

## COILS (RF-IF)

ITEM No.	USE
----------	-----